

The tidal influence was felt in the Sacramento for about 10 miles above the mouth of the American and, on several days, amounted to as much as 1.5 feet at Sacramento City.

Some rain fell in the high regions of the Sierra Nevada, and a few light showers occurred in parts of the valley floor, but in no case was there any effect in the run-off noted.

Numerous sand bars were uncovered in the Sacramento above Sacramento City. Below the city, however, there was little or no interruption in navigation on account of low water, which indicates that the river below the mouth of the American has scoured since the low-water season of 1912.

Lower San Joaquin watershed.—The extreme low-water stages for this watershed were reached during the last decade of the preceding month. Since then there has been little change, except that there was a slight rise in the Tuolumne River on the 30th, due to heavy rains in the upper reaches of that stream. There was no rain along the course of the trunk stream or in the lower reaches of its tributaries.

NOTES ON STREAMS AND WEATHER OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

The streams of the Upper San Joaquin watershed continued at very low stages until near the close of the month when rises unusual for this time of the year occurred in

all of them. In the Kaweah the rise amounted to 2 feet, in the Kings, 3.2 feet, and about the same amount in the San Joaquin itself, while the Merced showed a rise of 0.7 foot.

In the valley floor the rainfall was not considerable, but rains in excessive amounts occurred in the mountains, especially from the 21st to the end of the month, when they were of daily occurrence. This resulted in the unusual phenomenon of the streams running full for several days at a time in a season of scant water supply and at a time of the year when the streams ordinarily are at extremely low stages. This altogether unexpected addition to the water supply was quite welcome, and will make an additional cutting of alfalfa, which otherwise would not have been obtained on lands dependent on ditch water for irrigation.

The temperature for the month was considerably above the normal, the excess being wholly due to high minima, the persistent unsettled condition of the weather and the humid state of the air preventing the normal nocturnal radiation. From the 21st to the close of the month it was unusually sultry and the minimum at Fresno did not go below 73°. No similar period of heat with such duration is found in the 26 years of record. Two cases of sunstroke were reported in the press, although cases of this kind had been practically unknown hitherto.